

# इंटरनेट

# मानक

## Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 9500 (1980): 360° Rotary Emergency Warning Lights [TED 11: Automotive Electrical Equipment]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”



BLANK PAGE



# *Indian Standard*

## SPECIFICATION FOR 360° ROTARY EMERGENCY WARNING LIGHTS

UDC 628.978.6-13



© Copyright 1980

**INDIAN STANDARDS INSTITUTION**  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG  
NEW DELHI 110002

# Indian Standard

## SPECIFICATION FOR

### 360° ROTARY EMERGENCY WARNING LIGHTS

Automobile Electrical Equipment Sectional Committee, ETDC 14

#### Chairman

SHRI B. S. V. RAO

#### Representing

The Automotive Research Association of India,  
Pune

#### Members

|                                                 |                                                                                    |
|-------------------------------------------------|------------------------------------------------------------------------------------|
| SHRI Y. M. BALAKRISHNA                          | Motor Industries Co Ltd, Bangalore                                                 |
| SHRI M. S. S. JOIS ( <i>Alternate</i> )         |                                                                                    |
| SHRI J. V. BAPURAJ                              | Small Scale Industries, New Delhi                                                  |
| SHRI B. S. BHAGOWALIA                           | Tata Engineering & Locomotive Co Ltd,<br>Jamshedpur                                |
| SHRI K. S. KELKAR ( <i>Alternate</i> )          |                                                                                    |
| SHRI A. B. BHAMBRE                              | Central Institute of Road Transport (Training &<br>Research), Pune                 |
| SHRI R. BHANDARI                                | J. M. A. Industries Pvt Ltd, New Delhi                                             |
| SHRI P. S. PATTABHIRAMAN ( <i>Alternate</i> )   |                                                                                    |
| SHRI S. C. BHAR                                 | Hindustan Motors Ltd, Calcutta                                                     |
| SHRI R. S. CHANDHOKE                            | Vehicles Research & Development Establishment<br>(Ministry of Defence), Ahmednagar |
| MAJ DILBAGH RAI ( <i>Alternate</i> )            |                                                                                    |
| SHRI S. S. DATE                                 | Globe Auto Electricals Ltd, Bombay                                                 |
| SHRI S. L. SARAF ( <i>Alternate</i> )           |                                                                                    |
| LT-COL K. P. DESWAL                             | Department of Defence Production (DGI),<br>(Ministry of Defence) New Delhi         |
| LT-COL RANJEET SINGH ( <i>Alternate</i> )       |                                                                                    |
| SHRI P. K. JAIN                                 | Prestolite of India Ltd, New Delhi                                                 |
| SHRI R. L. BANSAL ( <i>Alternate</i> )          |                                                                                    |
| SHRI N. M. JOBANPUTRA                           | Mahindra & Mahindra Ltd, Bombay                                                    |
| SHRI C. V. KARTHICK NARAYANAN                   | Standard Motor Products of India Ltd, Madras                                       |
| SHRI L. SRINIVASA MADHAVAN ( <i>Alternate</i> ) |                                                                                    |
| SHRI P. B. KERKAR                               | Bombay Electric Supply & Transport Under-<br>taking, Bombay                        |
| SHRI M. J. MANTRI                               | Autometers Ltd, Ballabgarh                                                         |
| SHRI A. K. CHOPRA ( <i>Alternate</i> )          |                                                                                    |
| SHRI S. K. MUKHERJEE                            | National Test House, Calcutta                                                      |
| SHRI D. N. UPADHYAY ( <i>Alternate</i> )        |                                                                                    |

(Continued on page 2)

© Copyright 1980

INDIAN STANDARDS INSTITUTION

This publication is protected under the *Indian Copyright Act* (XIV of 1957) and reproduction in whole or in part by any means except with written permission of the publisher shall be deemed to be an infringement of copyright under the said Act.

## IS : 9500 - 1980

( Continued from page 1 )

| <i>Members</i>                                | <i>Representing</i>                                        |
|-----------------------------------------------|------------------------------------------------------------|
| SHRI VEPA A. MURARI                           | Lucas-TVS Ltd, Madras                                      |
| SHRI V. S. MANI ( <i>Alternate</i> )          |                                                            |
| SHRI K. MUTHUSUBRAMANIAN                      | Ashok Leyland Ltd, Madras                                  |
| SHRI O. SUDARSHAN ( <i>Alternate</i> )        |                                                            |
| CDE B. K. S. NAIR                             | International Instruments Pvt Ltd, Bangalore               |
| SHRI R. KALYANASUNDARAM ( <i>Alternate</i> )  |                                                            |
| SHRI SUSHIL KUMAR                             | Directorate General of Technical Development,<br>New Delhi |
| SHRI S. K. BHARIJI ( <i>Alternate</i> )       |                                                            |
| SHRI V. P. TILAK                              | Premier Automobiles Ltd, Bombay                            |
| SHRI T. S. PILLAY ( <i>Alternate</i> )        |                                                            |
| SHRI H. V. VAZE                               | Maharashtra State Road Transport Corporation,<br>Bombay    |
| SHRI S. P. SACHDEV,<br>Director ( Elec tech ) | Director General, ISI ( <i>Ex-officio Member</i> )         |

### *Secretaries*

SHRI DIPAK DASDE  
Assistant Director ( Elec tech ), ISI

SHRI H. C. DUNEJA  
Assistant Director ( Elec tech ), ISI

# *Indian Standard*

## SPECIFICATION FOR 360° ROTARY EMERGENCY WARNING LIGHTS

### 0. FOREWORD

**0.1** This Indian Standard was adopted by the Indian Standards Institution on 2 May 1980, after the draft finalized by the Automobile Electrical Equipment Sectional Committee had been approved by the Electrotechnical Division Council.

**0.2** These roof mounted rotary emergency warning lights are used on authorized emergency vehicles such as police vehicles, hospital ambulances, fire brigade vehicles and aerodrome vehicles. The light is visible through a dome from all directions in the horizontal plane. This standard shall be read in conjunction with IS : 3105-1966\*.

**0.3** In preparing this standard assistance has been derived from the following documents:

E Regulation. United Nations Economic and Social Council.  
SAE J845 360 Degree emergency warning lamp. Society of  
Automotive Engineers. USA.

**0.4** For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960†. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

---

### 1. SCOPE

**1.1** This standard specifies requirements and methods of test for 360° rotary emergency warning signal lights installed on vehicles.

### 2. TERMINOLOGY

**2.0** For the purpose of this standard, the following definitions shall apply.

---

\*General requirements for automobile lighting and signalling devices.

†Rules for rounding off numerical values (*revised*).

## IS : 9500 - 1980

**2.1 Emergency Warning Light** — A roof mounted device for use on authorised emergency vehicles such as police vehicles (flying squads), hospital ambulances, fire brigade vehicles and aerodrome vehicles.

**2.2 Rated Voltage** — The voltage declared by the manufacturer, at which the rotary emergency light is operated to perform the assigned duty satisfactorily.

**2.3 Rated Load** — The total load stated by the manufacturer at which the rotary emergency light is operated to perform the assigned duty satisfactorily.

**2.4 Dome** — The coloured transparent cover over the lamp.

**2.5 Type Tests** — Tests carried out to prove conformity with the specification. These are intended to prove the general qualities and design of a given type of the rotary emergency warning light.

**2.6 Acceptance Tests** — Tests carried out on samples taken from a lot for the purpose of acceptance of the lot.

**2.7 Routine Tests** — Tests carried out on each rotary emergency warning light to check requirements which are likely to vary during production.

## 3. DESIGN, CONSTRUCTION AND REQUIREMENTS

**3.1** The rotary emergency warning light system should preferably be of such a construction that if the lamp of the warning light fails to glow, the driver of the vehicle shall readily recognize it by means of a pilot lamp.

**3.2** The materials used in the construction of the rotary emergency warning light shall be of such quality, type, design and construction that will provide adequate protection in normal use against mechanical and electrical failures and shall withstand the effects of changing weather conditions, water or excessive dampness, corrosion, dust, steam, oil, high temperature or any other deleterious influence to which they will be exposed under the condition of their normal use.

**3.3** Mounting arrangement of the rotary emergency warning light shall be such that it can be easily mounted on the top of the vehicle to provide 360° visibility at all times.

**3.4 Lamps** — The rotary emergency warning light shall be fitted with lamp of the type specified by the manufacturer. The lamp shall comply with IS : 1606-1979\*.

---

\*Specification for automobile lamps ( *second revision* ).

**3.5 Colour of Light** — The colour of light to be emitted by rotating emergency warning light used in different vehicles shall be as follows:

- a) Blue — For police vehicles (flying squads) and hospital ambulances;
- b) Red — For fire brigade vehicles and police vehicles connected with fire service; and
- c) Amber — For vehicles on highway emergency service missions and for aerodrome vehicles.

**3.6 Colorimetric Requirements** — The requirements of the red and amber coloured domes or cover lenses used on the rotating emergency warning lights shall conform to the requirements laid down in IS : 3105-1966\*. The trichromatic coordinates for the light from blue domes shall be as follows:

Limit towards green  $y \leq 0.065 + 0.805 x$

Limit towards white  $y \leq 0.400 - x$

Limit towards purple  $x \leq 0.133 + 0.600 y$

**3.7** The rotating emergency warning light dome or cover lens shall project a minimum area of 100 cm<sup>2</sup> as measured on a vertical plane passing through the centre of the light.

**3.8** The emergency warning light, when rotating, shall project a flashing beam signal throughout 360° on the horizontal plane passing through the centre of the light source. The device shall project a beam of light on a vertical plane rotating around the horizontal axis of the light and shall have a total light spread of at least 10° extending a minimum of 5° above and 5° below the horizontal plane of the light source.

## 4. TESTS

### 4.1 Classification of Tests

**4.1.1 Type Tests** — The following shall constitute the type tests. A total of nine† samples shall be tested and the number of samples for various tests and their sequence shall be as indicated below:

| <i>Test</i>                               | <i>No. of Samples</i> |
|-------------------------------------------|-----------------------|
| a) Visual examination ( see 4.2 )         | All                   |
| b) Verification of dimensions ( see 4.3 ) | All                   |
| c) Performance test ( see 4.4 )           | All                   |

\*General requirements for automobile lighting and signalling devices.

†Thirteen samples for emergency warning lights with plastic lenses or parts.

| <i>Test</i>                                                               | <i>No. of Samples</i> |
|---------------------------------------------------------------------------|-----------------------|
| (1)                                                                       | (2)                   |
| d) Measurement of projected area of dome or cover lens ( <i>see</i> 4.5 ) | All                   |
| e) Measurement of projection of flashing beam ( <i>see</i> 4.6 )          | All                   |
| f) Vibration test ( <i>see</i> 4.7 )                                      | Two                   |
| g) Life test ( <i>see</i> 4.8 )                                           | Two                   |
| h) Salt spray test ( <i>see</i> 4.9 )                                     | One                   |
| j) Dust test for seals and gasket ( <i>see</i> 4.10 )                     | One                   |
| k) Extreme temperature test ( <i>see</i> 4.11 )                           | One                   |
| m) Photometric test ( <i>see</i> 4.12 )                                   | One                   |
| n) Water spray test ( <i>see</i> 4.13 )                                   | One                   |
| p) Warpage test* ( <i>see</i> 4.14 )                                      | One                   |
| q) Plastic stability test* ( <i>see</i> 4.15 )                            | One                   |
| r) Solarization test* ( <i>see</i> 4.16 )                                 | One                   |
| s) Test for resistance to oil* ( <i>see</i> 4.17 )                        | One                   |

**4.1.1.1 Criteria for approval** — The samples shall be submitted for testing together with the relevant data. The testing authority shall issue a type approval certificate if the emergency warning lights are found to comply with the requirements of tests given in 4.1.1.

**4.1.1.2** In case of failure of the emergency warning lights in one or more type tests, the testing authority may call for fresh samples not exceeding twice the number of original samples and subject them to the test(s) in which failure occurred. If in repeated test(s) no failure occurs, the tests may be considered to have been satisfied.

#### **4.1.2 Acceptance Tests**

- a) Visual examination ( *see* 4.2 ),
- b) Verification of dimensions ( *see* 4.3 ),
- c) Performance test ( *see* 4.4 ),
- d) Photometric test ( *see* 4.12 ), and
- e) Test for resistance to oil\* ( *see* 4.17 ).

---

\*Applicable only to emergency warning lights with plastic lenses or parts.

**4.1.2.1** The number of samples for acceptance tests shall be as agreed to between the purchaser and the manufacturer. However, a recommended plan of sampling is given in Appendix A.

**4.1.3 Routine Tests** — The following shall constitute routine tests:

- a) Visual examination ( *see* 4.2 ),
- b) Verification of dimensions ( *see* 4.3 ), and
- c) Performance test ( *see* 4.4 ).

**4.2 Visual Examination** — The rotating emergency warning light shall be examined for finish and workmanship.

**4.3 Verification of Dimensions** — The rotating emergency warning light shall meet the requirements of the overall and fixing dimensions wherever they are specified.

**4.4 Performance Test** — The emergency warning light shall be tested with a voltage range of 90 to 115 percent of the rated voltage at  $27 \pm 2^\circ\text{C}$ . When observed from a fixed position, the flash rate after ten minutes of running shall be within 120 to 210 flashes per minute.

**4.4.1 Radio Interference** — In order to protect radio receivers installed in vehicles other than that to which the beacon is fitted, the radio interference emitted from rotating beacons shall be within the following limits:

| Limit                 | Field Strength |                 | Remarks                            |
|-----------------------|----------------|-----------------|------------------------------------|
|                       | Distance       | Frequency range |                                    |
| $\mu\text{V/m}$       | m              | MHz             |                                    |
| Up to 50              | 10             | 40-75           |                                    |
| Over 50 and up to 120 | 10             | 75-750          | Increasing linearly with frequency |

NOTE — Where the vehicle is fitted both with a rotating beacon and a radio receiver, the importance of not mounting the beacon and the receiving aerial in close proximity is emphasized.

**4.5 Measurement of Projected Area of Dome or Cover Lens** — The projected area of dome or cover lens shall be measured to comply with 3.7.

**4.6 Measurement of Projection of Flash Beam** — This measurement shall be carried out to check the requirements given in 3.8.

**4.7 Vibration Test** — The light unit shall be subjected to a vibration test in accordance with 5.1.5 of IS : 3105 - 1966\*. At the end of the test the unit shall be tight and shall not rattle. The unit shall then comply with the requirements of performance test given in 4.4.

**4.8 Life Test** — The emergency light shall be connected to a source of  $6.75 \pm 0.05V$ ,  $13.5 \pm 0.1V$  or  $27 \pm 0.2V$  for rated voltages of 6, 12 and 24V respectively. The light shall be operated for 9 to 10 hours continuously per day. During the operation, an air blast of approximately  $30 \text{ m}^3/\text{min}$  may be used for cooling the light. The light shall operate satisfactorily for 500 hours and after this test the light shall comply with the requirements given in 4.4.

**4.9 Test for Salt Spray** — The light unit shall comply with the requirements prescribed in 5.1.7 of IS : 3105-1966\*. The test shall be carried out on a completely assembled unit mounted on a fixture comparable to the mounting on the vehicle to ensure realistic severity of test.

**4.10 Dust Test for Seals and Gaskets** — The light unit shall comply with the requirements prescribed in 5.1.8 of IS : 3105 - 1966\*.

#### **4.11 Extreme Temperature Tests**

**4.11.1 Dry Heat Test** — The light unit shall be subjected to an ambient temperature of  $85 \pm 5^\circ\text{C}$  continuously for 6 hours. From the beginning of the sixth hour to the end of the test, the light unit shall be lighted and operated at its rated voltage. At the end of the sixth hour, the light unit shall continue to function normally and after the test, the flash rate shall remain within the range specified in 4.4.

**4.11.2 Low Temperature Test** — The light unit shall be subjected to an ambient temperature of  $-20^\circ\text{C}$  for 6 hours. At the end of the sixth hour, the light unit shall be lighted and operated at its rated voltage. After the unit has been allowed to operate for 3 minutes, it shall function normally and flash rate shall be not less than 50 flashes per minute.

**4.12 Photometric Test** — All candle power measurements shall be made with the incandescent filament of the signal lamp placed at a distance of 18 m or more from the test screen.

**4.12.1** In photometric test, the device shall be mounted so that the horizontal plane through the photometer axis passes through the centre

---

\*General requirements for automobile lighting and signalling devices.

of the light source of the rotating element. The vertical axis through the centre of the light source shall be perpendicular to the horizontal plane.

**4.12.2** The rotating element shall be turned on its vertical axis until the photometer indicates maximum candle power. This shall be the H-V point. The candle power measured within the angular limits shall not be less than the value specified in Table 1.

**TABLE 1 PHOTOMETRIC REQUIREMENTS**

| TEST ANGLE   | CANDLE POWER, MIN |       |      |
|--------------|-------------------|-------|------|
|              | Red               | Amber | Blue |
| (1)          | (2)               | (3)   | (4)  |
| Degrees      |                   |       |      |
| 5 U to 5 D   | 50                | 125   | 12.5 |
| 2½ U to 2½ D | 200               | 500   | 50   |

**4.13 Water Spray Test** — The light unit shall comply with the requirements of IS : 2106 ( Part XI )-1965\*.

**4.14 Warpage Test for Units with Plastic Lenses** — The light unit shall comply with the requirements of 5.1.10 of IS : 3105-1966†.

**4.15 Plastic Stability Test for Units with Plastic Lenses** — The light unit shall comply with the requirements of 5.1.11 of IS : 3105-1966†.

**4.16 Solarization Test** — The complete assembly of the emergency warning lights shall be exposed to weather for four weeks. The equipment shall function satisfactorily and there shall not be any opacity of the lens or dome after the test. After the test, the lens shall conform to IS : 6917-1973‡.

**4.17 Test for Resistance to Oil** — The light unit shall comply with the requirements of 5.1.6 of IS : 3105-1966†.

## 5. MARKING

**5.1** The emergency warning light shall be marked with the following information:

- Manufacturer's name and/or trade-mark,
- Rated voltage,

\*Environmental tests for electronic and electrical equipment: Part XI Water spray test.

†General requirements for automobile lighting and signalling devices.

‡Specification for glass lenses for automobile headlights.

- c) Rated load in watts,
- d) Rate of flashes per minute,
- e) Country of manufacture, and
- f) Month and year of manufacture.

**5.1.1** The emergency warning light may also be marked with the ISI Certification Mark.

**NOTE** — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution ( Certification Marks ) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

## **APPENDIX A**

*( Clause 4.1.2.1 )*

### **SCALE OF SAMPLING AND CRITERIA FOR CONFORMITY**

#### **A-1. LOT**

**A-1.1** In any consignment, all the lights of the same designation and type and manufactured by the same factory under similar conditions of manufacture, shall be grouped together to constitute a lot.

**A-1.1.1** From each lot, certain number of lights shall be taken and subjected to acceptance tests.

#### **A-2. SCALE OF SAMPLING**

**A-2.1** The number of lights to be selected, shall depend on col 1 and 2 of Table 2. These lights shall be selected at random. For this purpose, provisions contained in IS : 4905-1968\* shall be used.

---

\*Methods for random sampling.

**TABLE 2 SCALE OF SAMPLING AND PERMISSIBLE NUMBER OF DEFECTIVES**

| NO. OF LIGHTS<br>IN A LOT | NO. OF LIGHTS TO<br>BE SELECTED | PERMISSIBLE NO. OF<br>DEFECTIVES |
|---------------------------|---------------------------------|----------------------------------|
| (N)                       | (n)                             | (a)                              |
| (1)                       | (2)                             | (3)                              |
| Up to 50                  | 5                               | 0                                |
| 51 to 150                 | 8                               | 0                                |
| 151 to 300                | 20                              | 0                                |
| 301 to 500                | 32                              | 1                                |
| 501 and above             | 50                              | 2                                |

**A-3. NUMBER OF TESTS AND CRITERIA FOR CONFORMITY**

**A-3.1** The lights shall be selected according to col 1 and 2 of Table 2. Each light shall be tested for the acceptance tests in the same order as given in clause 4.1.2. A light failing to meet any one of the acceptance tests shall be called a defective. If the number of defective lights is less than or equal to the corresponding permissible number of defectives, (see col 3 of Table 2), the lot shall be declared as conforming to the acceptance tests.

# INDIAN STANDARDS

## ON

### AUTOMOBILE ELECTRICAL EQUIPMENT

IS :

- 1062-1963 Methods of test for sparking plugs (*revised*)
- 1063-1963 14-mm sparking plugs (*revised*)
- 1884-1970 Automobiles electric horns (*first revision*)
- 2077-1962 Automobile electric horn relays
- 2081 (Part I)-1976 Taper terminal cable connectors for automobile batteries: Part I  
Brass type connectors (*first revision*)
- 2325-1963 Ignition coils
- 2465-1969 Cables for motor vehicles (*first revision*)
- 2577-1974 Cartridge fuse-links for automobiles (*first revision*)
- 2646-1964 Generators (dynamos) for automobile
- 3105-1966 General requirements for automobile lighting and signalling devices
- 3141-1965 Starters for automobiles
- 3563-1974 Automobile headlights (replaceable lamp type) (*first revision*)
- 3628-1966 Side lights, tail-lights, parking lights, stop lights and direction indicators  
for automobile use
- 4050-1976 Methods of tests for horn switches for automobiles (*first revision*)
- 4060-1978 Flashers for direction indicators for automobiles (*first revision*)
- 4061-1967 Headlight switches for automobiles
- 4062-1967 Foot-operated headlight dip switches for automobiles
- 4063-1967 Fuse box for automobiles
- 4086-1967 Methods of test for distributors
- 4362-1967 Recommendation for lighting of number plates for automobiles
- 4370-1967 Code of practice for the use of lighting and signalling devices on cars and  
commercial vehicles
- 4373-1967 Hydraulically operated stop light switches for automobiles
- 4815-1968 Self-cancelling direction indicator switches for automobiles
- 5439-1978 Oil pressure switches for automobiles (*first revision*)
- 5545-1977 Fog lights for automobiles (*first revision*)
- 5546-1970 Distributor caps for automobiles
- 5562-1970 Fuel gauges for automobiles
- 5577-1970 Ammeters for automobiles
- 5977-1971 Regulators for automobile dc generators (dynamos)
- 7471-1974 Recommendation for polarity of earth connections and marking of electrical  
equipment for automobiles
- 7528-1974 Porcelain (moulded) fuse-links for automobiles
- 7827 (Part I)-1975 Electrical wind screen wipers: Part I Wiper system
- 7827 (Part II)-1975 Electrical wind screen wipers: Part II Wiper motors
- 7953-1976 Horn rings for automobiles
- 7998-1976 Contact breakers for two wheelers, three wheelers and stationary spark  
ignition engines
- 8395 (Part I)-1977 Cable terminations for automobile wiring: Part I Blade type  
connectors (male and female)
- 8395 (Part II)-1977 Cable terminations for automobile wiring: Part II Bullet and  
tube type connectors
- 8415-1977 Mounting dimensions of headlights for automobiles
- 8416-1977 Mounting dimensions of fog lights for automobiles
- 8925-1978 Alternators for automobiles